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# Electronic Health Records and Rural Hospitals

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## Electronic Health Records and Rural Hospitals

Nearly 20% of the U.S. population lives in rural areas and are not resistant to many of the U.S. healthcare challenges such as cost, quality, and access. In fact, the distinguishing cultural, social, economic, and geographic traits which characterize rural America place rural populations at greater risk for many diseases and health disorders.<sup>1</sup> The speed at which the health care system in the United States has changed has impacted all Americans, including those living in rural communities. Like those in urban settings, people from rural areas have been affected by the use of health information technology, where treatment is now data-intensive, and there are more options and greater expectations of quality and accountability. Due to cost, geographic and social traits, and the digital divide between urban and rural communities, the rapid changes in health information technology have not affected rural communities in the same way they have affected more central and populous areas. Rural societies are not getting their share of the benefits from medical progress and the new structure of healthcare because of the lack of health technologies in their communities. The irony is that rural communities are often the ones with the poorest health outcomes and most in need of assistance. Implementation of EHRs is more difficult in rural areas, in comparison to urban ones due to certain barriers. But, with a little more time and effort on behalf of hospital staff, policy makers, and patients, these rural areas can overcome the barriers of implementation and succeed in meeting the meaningful use requirements. Ultimately, this will transform the quality of care within rural healthcare facilities and furthermore improve the health outcomes of rural patients.

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<sup>1</sup> Rural Healthy People 2010, <http://www.srph.tamhsc.edu/centers/rhp2010/>

Due to the sparser populations in rural areas, the populations are trending increasingly older because of the outmigration of rural youth and aging baby boomer population. While rural populations are older, certain rural areas also have a higher presence of different minority groups within the area. Traditionally it has always been that way: African Americans in the rural south, Native American populations in the West, and Mexican heritage in the Southwest. “These historical sources of diversity have been augmented by natural increase and by immigration, especially in the last decade as rural industries increasingly hire foreign-born workers to do low-skilled jobs”.<sup>2</sup> Most people living in rural populations are living at, or below the US poverty line. All of these factors affect the role hospitals play in rural communities. Disparities in health resources and health outcomes among racial/ethnic minority and poorer populations have long been a recognized public health problem. Because rural areas have a high prevalence rate of these groups of people, their health outcomes are naturally lower.

As healthcare moves toward the widespread use of technology to meet growing concerns over patient care and safety, the need to create a health information technology (HIT) infrastructure to transport data and to create information-sharing networks between healthcare providers becomes increasingly apparent. The Health Information Technology for Economic and Clinical Health Act (HITECH Act) was signed into law in February of 2009. The provisions of the HITECH Act are designed to provide the necessary assistance and technical support to providers, enable coordination and alignment of care within and among states, and most significantly make health care providers meaningful users of certified Electronic Health Records (EHRs). These programs collaboratively build the foundation that allows every American to

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<sup>2</sup> Annabel Kirshner, “The Changing Demographic Profile of Rural America”

benefit from an EHR as part of a modernized, interconnected, and vastly improved system of care delivery.<sup>3</sup> Part of the stimulus bill allocates approximately \$44,000 for each practicing clinician and between \$2 million and \$10 million for each hospital that qualifies as a “meaningful” user of EHRs. Meaningful use is defined by Congress, who demanded that it include electronic prescribing, health information exchange (sharing clinical data among clinicians and hospitals), and automatic reporting of quality performance. The final meaningful use regulation combines these three requirements that clinicians and hospitals must meet to receive incentive payments. Other requirements include electronically recording key parts of a patient's history, creating summary documents, and implementing at least one clinical decision support tool. Other functions of the EHR consist of generating lists of patients with specific conditions, using EHRs to provide patients with educational materials, and performing medication reconciliation<sup>4</sup> ( which is “the process of comparing a patient's medication orders to all of the medications that the patient has been taking”<sup>5</sup>). The goal of the meaningful use provisions is that it will improve the legibility of clinical records, diminish prescription errors, improve obedience to guidelines, improve patients' access to their own records, and guarantee that doctors and hospitals are capable of exchanging clinical data. The Meaningful Use Guidelines set the bar very high for many practitioners and hospitals, especially in rural communities where staff and resources are limited. Many rural clinicians and hospitals are struggling simply to implement EHRs, let alone achieve these goals. However, if these rural areas can overcome the barriers of implementation and succeed in meeting the meaningful use

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<sup>3</sup> Certification and EHR Incentives, HealthIT.gov

<sup>4</sup> Ashish K. Jha, MD, MPH, “Meaningful Use of Electronic Health Records: The Road Ahead”

<sup>5</sup> U.S Department of Health and Human Services , Electronic Health Record  
[http://www.ihs.gov/ehr/index.cfm?module=medication\\_reconciliation](http://www.ihs.gov/ehr/index.cfm?module=medication_reconciliation)

requirements it will transform the quality of care within their healthcare facility and moreover improve the health outcomes of patients.

The main purpose of the HITECH Act was to improve healthcare quality through the coordination of care through the highly incentivized implementation of EHRs. While the ultimate goal of using EHRs was to improve quality and save money by reducing overutilization, the costs of initially implementing the EHRs can be enormous, especially for a small practice. Perhaps the most important organizational barrier to the adoption of new technology is cost. For new technology, both start-up costs and maintenance costs can be excessive. Additionally, it is often difficult to directly assess the patient and cost benefit savings of new technology on patient care. Michael McBride reports in his article, *Understanding the True Costs of an EHR Implementation Plan* that “a typical multiphysician practice would spend about \$162,000 to implement an EHR, with \$85,500 for first-year maintenance costs”. This dollar amount is much higher than what the government is allocating to each practice to implement these systems. Rural hospitals are mostly treating poor or elderly patients, and are therefore treating patients who depend on Medicare and Medicaid. Furthermore, most rural hospitals work on a not-for-profit basis.<sup>6</sup> Reimbursement rates for these government programs are lower than that of private insurance, and therefore rural hospitals are working on smaller incomes compared to urban communities. Not only are the costs uneconomical for some doctors offices, the HITECH Act does not consider the barriers that must be overcome to achieve authentic meaningful use of EHRs.<sup>7</sup> The costs of implementing EHRs may save money in the future, but rural physician’s offices initially won’t have the money up front to implement this technology. The incentives for

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<sup>6</sup> Thomas Ricketts and Paige E. Heaphy, “Hospitals in Rural America”

<sup>7</sup> Michael McBride, “Understanding the True Costs of an EHR Implementation Plan”

achieving meaningful use are very high but it is also unrealistic for most rural hospitals. Rural physician offices have limited resources and struggle to keep up with hospital maintenance.

Large, urban hospitals continue to be more resourceful in adopting electronic health records compared to rural and nonteaching hospitals. Studies show that only 44 percent of hospitals report having and using at least a basic EHR system. “Compared to hospitals without an EHR system, those with at least a basic system were more likely to be large, Midwestern, and majoring teaching hospitals. Rural hospitals were considerably less likely than urban hospitals to have at least a basic system.”<sup>8</sup> And, “only 19.4 percent of rural hospitals had comprehensive EHR systems in 2011 — the lowest rate”.<sup>9</sup> The inequality in the rate of adoption of EHRs across different areas of the United States demonstrates that there are certain positive and negative effects for the current financial incentives in place across the US health care system. Achieving a national health information technology infrastructure requires more effort and initiative on the part of policy makers to be directed towards smaller, rural hospitals.

There are a variety of barriers from the provider perspective aside from cost; economies of scale, lack of staff computer skills, margin of error, and vendor scheduling are all examples of these challenges that need to be overcome to successfully meet meaningful use standards. Rural hospitals struggle with both the resources and staff to implement EHRs and meet meaningful use. They have smaller IT departments, which places a large amount of pressure to implement EHRs and meet federally mandated deadlines on such a small number of staff members. Rural hospitals have to function with fewer employees, less money and less time and rolling out brand new software can be especially difficult. Employees absences can become a major barrier as extended leave can severely slow down productivity. With such a small staff team to start with,

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<sup>8</sup> “Adoption of Electronic Health records grows Rapidly, But Fewer Than Half of US Hospitals at least a basic System in 2012”

<sup>9</sup> Kathleen Roney, 6 Biggest Meaningful Use Challenges for Rural Hospitals

there may be no one to cover another employee's shift when they are absent, limiting the entire team's efficiency abilities, which are key in meeting the meaningful use deadlines. Employee absences make it harder to be on time and efficient when implementing EHRs and meeting Meaningful Use requirements. The implementation phase can last as long as several months, and frequent employee absences make the implementation process longer than it needs to be.

Many rural hospitals do not have access to computers in all areas of the hospital, so employees may not be as familiar with basic computer practices, as most rural staff members do not have basic computer competency.<sup>10</sup> Before EHRs can be implemented and meaningful use can be achieved, the entire hospital staff needs to be comfortable with computer technology. Basic computer practices that are second nature for much of the general public are foreign for many rural staff. Performing tasks such as running anti-virus updates, rebooting the computer when it freezes, or troubleshooting may be difficult for people unfamiliar with the technology.<sup>11</sup> Hospital staff need to first become familiar with the basic use of a computer in order to avoid future confusion when using an EHR and a problem arises.

Rural hospitals have to be especially careful when implementing EHRs because the technology budgets are small. Small budgets force increased efficiency because the budget does not have room for errors, which can be costly. Executives may not necessarily know what to look for in IT software or what questions to ask, which may lead to problems. Hospital managers need to know certain things such as knowing that the EHR chosen for the hospital can share data with surrounding hospitals' EHR systems, the EHR needs to bill patients in a well-timed manner, and properly provide patients with their healthcare records. When issues arise with EHRs, it slows down a hospital's progression towards meaningful use. The hospitals need to be cautious with

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<sup>10</sup> Kathleen Roney, 6 Biggest Meaningful Use Challenges for Rural Hospitals

<sup>11</sup> Kathleen Roney, 6 Biggest Meaningful Use Challenges for Rural Hospitals

their software and vendor choices, as everything that is implemented needs to work correctly. If something goes wrong with the system it could cost the hospital more money to fix it.

Lastly, one of the biggest challenges for rural hospitals to overcome is scheduling vendor meetings to stay on top of the federally mandated meaningful use deadlines. In order to meet the deadlines, the hospital administration needs to understand each mandate and know when the deadlines are. Therefore the modules need to be built in a certain order. If any steps are done out of order it can push back the confirmation dates, which can lead to not meeting the meaningful use deadlines. Unfortunately, little problems and distractions can be expected, causing the framework to naturally end up out of order and therefore delay deadlines. Hospitals need to be mindful of each step on the way to achieving meaningful use. Problems meeting deadlines increase when health information technology and EHR vendors are hard to schedule. One vendor may be working on implementing systems in many other hospitals, so it can be hard to get analyst time with that vendor, thus scheduling appointments with the vendor in advance needs to be taken into consideration by hospital administrators.<sup>12</sup> This is especially important for rural hospitals because, as previously noted, small budgets do not leave much room for error or mistakes.

Not only are there barriers from the provider perspective, but there are also barriers from the patient viewpoint as well. The quality benefits that an electronic health care system is offering hospitals will have trouble improving rural hospitals because EHRs do not consider the demographic differences of rural communities. As mentioned earlier, rural communities consist of mainly poor, elderly, and minority populations. It may take longer for these populations to benefit from EHRs because of language, medical terminology, and internet/ technology barriers. Kyle L. Galbraith of the Carle Foundation Hospital states, “In order for them [EHRs] to be truly

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<sup>12</sup> Kathleen Roney, 6 Biggest Meaningful Use Challenges for Rural Hospitals



meaningful, both providers and patients must be able to see the value of electronic health records and use this tool to their advantage”.<sup>13</sup> Patients need to be able to access their health care records and be able to fully understand them in order for EHRs to improve their quality of care. These barriers need to be addressed in order to fully benefit from health care information technology.

Achieving Meaningful Use of EHRs will only be successful in the appropriate context. In a rural area, it is difficult to improve quality of healthcare through health information technology but it can be successful if the patient and provider barriers are addressed and overcome. One of the chief objectives in stage one of Meaningful Use states that health care providers should be able to “ provide patients with an electronic copy of their health information(including diagnostic test results, problem list, medication lists, medication allergies, discharge summary, procedures) upon request” within three business days.<sup>14</sup> A main goal of the HITECH Act is to get patients to actively participate in their own health care. To achieve this, health care providers are increasingly offering patients more of an online personal health record. This seems like a good idea due to the ever-increasing use of the internet and online sources for medical information, but in a rural area access to computers and internet may not be wide spread. There is a digital divide here, an inequality between those who have internet access and those who do not. Therefore, these rural populations who would benefit most from their healthcare information being so readily available are also the ones who are most likely to not have access to it.

Along with being able to access their health information, patients also need to be able to understand what their records say. With the use of EHRs there is an obstacle regarding the understanding of medical terminology and the ability to translate that into a vernacular that all can understand. Even patients who do read and understand English may not understand what

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<sup>13</sup> Kyle L. Galbraith, “What’s So Meaningful about Meaningful Use?”

<sup>14</sup> Centers for Medicare and Medicaid Services, “CMS EHR Meaningful Use Overview”

their electronic health record says without a proper explanation from their doctor. Health literacy is defined as the ability to understand medical terminology. There is thus a correlation between health literacy and poorer populations, where those who have poorer health outcomes tend to have lower health literacy rates.<sup>15</sup> Patients in rural areas have the most to gain from an increase in access to their health records, yet are unlikely to benefit unless their doctor will work with them to explain what they are reading in their medical records.

While there are still many barriers to overcome for rural hospitals, research findings show that they are working to make an improvement in meeting meaningful use requirements. Catherine M. Roches, in her article on the adoption of EHRs, shows evidence that rural hospitals have made a substantial progress in adopting EHRs. “One in eight of them [rural hospitals] acquiring at least a basic system in 2012 alone. By the end of 2012 one-third of rural hospitals had at least a basic system – remarkable progress from 2008, when just 4.6 percent of them did.”<sup>16</sup> This data demonstrates that the barriers of implementation of EHRs can be overcome for these rural hospitals. However, the gap between urban and rural hospitals still remains. Policy makers need to pay additional attention to these rural areas, which often lack the financial and human resources to purchase, implement, and effectively use electronic health records.

If patients and rural hospitals, together are able to overcome these barriers, meaningful use of EHRs can help reduce the gaps in quality of care between rural and urban settings. Health information technology has the potential to transform how rural health providers collect, access, and coordinates care, improve disease surveillance, target health education, and compile regional data – all activities aimed at improving health care quality and patient outcomes. An EHR also creates an improved mechanism to complete specialty referrals which is valuable when access to

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<sup>15</sup> Kyle L. Galbraith, “What’s So Meaningful about Meaningful Use?”

<sup>16</sup> “Adoption of Electronic Health records grows Rapidly, But Fewer Than Half of US Hospitals at least a basic System in 2012”

specialists is often limited in rural communities. Additionally, EHRs will give healthcare providers instant access to information they need to make timely and vital decisions, it will decrease travel time for patients and their families, enable rural hospitals to utilize remote clinicians, pharmacists, and staff members to improve and extend access, facilitate efficient transfer to other hospitals for fundamental services not offered locally, and facilitate efficient local care.<sup>17</sup> Meaningful Use can be met in rural areas, but it will take a lot of time and effort on the part of the hospital. Strong leadership is needed from hospital administration, the staff needs to be willing to work longer and willing to learn how to use the computer systems, trial runs will be essential, and feedback will be very important to fix the glitches in the system before implementing EHRs in the hospital. This hard work will pay off and rural hospitals will realize better coordination of care and hopefully better health outcomes for patients.

Debra McCullough's study on a small health department in Texas is a perfect example of how to effectively implement EHRs and achieve meaningful use in rural hospitals. This study demonstrates that the barriers to implementation can be overcome in rural areas, and when EHRs are used in these areas they can be successful at improving care.<sup>18</sup> Andrews County Health Department (ACHD) is a small local health department located in rural West Texas. ACHD's ten fulltime employees and contracted physicians that provide public health services to county residents and primary health care services to uninsured low-income residents. After careful consideration and research, ACHD decided to transition from paper to an electronic health record system.

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<sup>17</sup> Benefits for Critical Access Hospitals and Other Small Rural Hospitals

<sup>18</sup> Debra McCullough, Effective Deployment of an EHR in a Rural LHD

ACHD's leadership played a vital role in the EHR implementation. The ACHD's governing board approved and funded the EHR. ACHD followed a step-by-step guide for medical practice EHR implementation. Step one consisted of learning the basics of EHRs. During step two, the staff conducted workflow analyses, compared paper administrative and patient care workflows to EHR workflows, participated in vendor demonstrations, and identified EHR champions. During step three, ACHD determined the appropriate EHR based on the budget and workflow needs and purchased the EHR(they chose eClinical Works). The fourth step addressed the EHR implementation phase: changing from paper medical records to an EHR. After EHR selection, the director formed a core EHR team to focus on the tasks of the final fifteen week pre-implementation period. Team members reviewed the project vision, defined roles and responsibilities, and developed clear goals with timelines and responsible persons. The team met at least weekly for 15 weeks to review how they were doing.

Staff training was an essential component of successful EHR implementation for ACHD. Six ACHD staff attended a two-day EHR conference. The program topics incorporated different significant pieces to the EHR. ACHD participated in four days of vendor training, including demonstrations and hands-on practice time for front office, RN, provider, and billing staff. The director conducted end-of-day staff meetings to address clinic policy questions.

The vendor assigned ACHD a strategic account manager, and provides online access to chat for "how to questions" and fix repair requests. Throughout the execution process, the staff was encouraged to notify the director of EHR troubles and to write the issues on a flip chart. Six months after implementation, revising processes has finally paid off. RNs identify EHR issues quickly and strive to restore workflow to improve efficiency. ACHD successfully transitioned

from a paper to an electronic medical record. The staff continues to engage patients, manage changes, and commemorate achievements.

ACHD strives to use the EHR to its best capacity by focusing on continual enhancement and workflow redesign. The next step on the road to achieving meaningful use is to implement the patient portal and increase the use of clinical decision support.<sup>19</sup> Because ACHD was able to overcome the barriers of implementation they were able to experience the benefits of using EHRs. With the use of EHRs patient safety and efficiency is improved, there is immediate access to up-to-date patient information, improved office efficiency – multiple staff can access the record simultaneously, no lost time in searching for records, records are legible, and it promotes a more consistent and thorough approach to documentation. Also there is a potential for financial benefits through clear, timely, and legible documentation.<sup>20</sup> Because ACHD has a clear and concise plan for implementation and clearly designed tasks for each hospital staff member, the EHR was more easily and successfully adapted. Through the step-by-step plan, ACHD was able to be successful and able to reap the benefits of implementation. Other rural hospitals could potentially adopt ACHDs step-by-step guide to aid their hospital through the implementation phase.

State governments and policy makers can have a huge impact on influencing rural hospitals to implement EHR systems. If the state is willing to help the hospitals, EHRs can be more easily and readily adapted, and in some cases for half the cost. For example, Indiana State pays critical access hospitals up to \$40,000 to offset the cost of EHR implementation. “Indiana's state health information exchange (HIE) program has a goal of driving interoperability by

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<sup>19</sup> Debra McCullough, Effective Deployment of an Electronic Health Record (EHR) in a Rural Local Health Department (LHD)

<sup>20</sup> Debra McCullough, Effective Deployment of an Electronic Health Record (EHR) in a Rural Local Health Department (LHD)

connecting disparate systems into a more cohesive network. One focus is helping to offset the costs of connectivity”.<sup>21</sup> One-quarter of funding is devoted to connecting rural areas to the state HIE infrastructure. "We've worked specifically in the rural areas to help drive adoption and help organizations navigate the HIE and health IT in general," says Andrew VanZee, MHA, statewide health IT director for the Indiana Family and Social Services Administration. A huge benefit a statewide organization can have in assisting providers is that they can advocate on their behalf. For instance, one national vendor that typically serves rural hospitals cut its interface costs in half when VanZee's team sought out a price compared with the cost presented to a rural hospital.<sup>22</sup>

The EHR selection and implementation process is an extensive one. For many hospitals, the search for an EHR takes more than six months. And on at least another four months for implementation (and up to two years depending on your vendor) and you have a lengthy process that can quickly eat away your time. Because choosing an EHR system is such a big decision, it is easy for the barriers to EHR implementation to quickly become mountains instead of anthills. Rural hospitals need to guide the team over those barriers and keep it focused on the end goal — improved patient care, financial stability for the hospital and the long-term health of the rural community.<sup>23</sup>

Patients, too, need to overcome barriers to EHRs. Proper implementation and use of EHRs calls for a stronger doctor- patient relationship. In order for EHRs to be efficient in improving care, patients need to be able to access and understand their health information.

Doctors in rural areas will have to work with their patients in order to help them understand

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<sup>21</sup> Beth Walsh, Government Programs Help Overcome Rural Barriers

<sup>22</sup> Beth Walsh, Government Programs Help Overcome Rural Barriers

<sup>23</sup> Ted Matthews, Overcoming the Top 5 Barriers to EHR Implementation

medical terminology and how to access their medical information. Even if patients do not have access to a computer or the internet doctors can print out their patient's medical records and treatment plans for their patient to have. These barriers will take time and patience to overcome but once they are overcome and meaningful use can be achieved, rural hospitals are going to be able to receive the benefits that EHRs have to offer.

The New York Times reported a story about a family doctor in Kansas who implemented EHRs in her solo practice and is fully seeing the benefits, not only for her, but also for her patients. Jennifer Brull, a doctor in rural Kansas, switched her 3,000 patients from paper charts to electronic health records. Now, working with computers and printouts, her staff of part-time nurses and office workers has more time to help her meet the needs of patients. The New York Times reported, "I'll never go back to the old system, said Dr. Brull. I can always look at the records by internet, whether I am seeing patients at the nursing home or a clinic or the hospital, or even when I'm as far away as Florida. The change has been tremendously beneficial for my productivity." Patients are appreciative, too. Charlotte Hayes, visits Dr. Brull for blood tests every few weeks. Charlotte does not have to sit and wait while the nurses search for the records; they find the information right there on the computer, and when she leaves, she gets a printout of what occurred in the visit and what was said.<sup>24</sup> Through the use of EHRs doctors will be able to work closely with patients to achieve a better quality of care for all. Patients will begin to see an improvement of care and a better relationship with their provider.

The realities of distance, isolation, and constricted resources can complicate rural health care delivery but EHRs have the ability to alleviate some of these problems. EHRs will create a more collaborative healthcare system across all rural areas which will thus help increase access to care and healthcare outcomes in rural areas. Additionally, EHRs will give healthcare providers

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<sup>24</sup> Milt Freudenheim, As Medical Charts Go Electronic, Rural Doctor Sees Healthy Change

instant access to information they need to make timely and fundamental decisions which creates and improved and more efficient way of delivering care within the hospital. Health care leaders in rural areas need to take charge and implement a tactical approach that puts clinical and operational improvements first while also recognizing the importance of utilizing technology for future success. Implementing an EHR is about more than the technology and new gadgets often associated with the change, the reasons to implement are out there. So now is the time to push aside the fears and overcome the obstacles keeping rural hospitals from implementing an EHR. Rural communities can benefit hugely from the HITECH Act and the implementation of EHRs. It may take considerably more time and effort to implement than urban areas but the results will be enormous. It will be worth the time and patience to implement these systems, doctors will better be able to coordinate care and patients will result in better health outcomes. Through the implementation and use of EHRs the gap of quality of care between rural and urban areas can finally start to shrink.



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